**Sustainable seas inquiry - Environmental Audit Committee**

Written Evidence submitted by Professor Elizabeth Kirk, Nottingham Trent University

#  Executive Summary

* 1. This submission answers questions 1, 2 and 3 of the sustainable seas inquiry set out by the Environmental Audit Committee.
	2. The submission sets out priority pollutants and the impact they are having on the marine environment.
	3. It sets out proposals for government led responses to this pollution.
	4. Plastics are highlighted as a key challenge and proposals are laid out for the adoption of further legislation to tackle pollution from plastics.
	5. This submission builds on Professor Kirk’s expertise in researching international environmental law, particularly the law on marine pollution. This experiences leads to a set of clear recommendations at the end of this submission which we hope the Committee will take forward.

#  About the Author

* 1. Professor Elizabeth Kirk has over 20 years’ experience of researching the laws relating to marine pollution from land-based activities and international environmental laws more generally. Her research has been funded by the AHRC, ESRC, EU, British Academy and Royal Society for Edinburgh, amongst others. She has published numerous papers in this area and produced 2 edited collections with colleagues. Her research has informed the work of intergovernmental organisations and national bodies such as the Scottish Environment Protection Agency. Professor Kirk is currently co-Director of the Centre for Marine Geological Resilience and Geological Resources in Nottingham Law School, Nottingham Trent University, chair of the IUCN Academy of Environmental Law, a member of the Steering Group of the World Commission of Environmental Law and a member of the Board of Management of the European Environmental Law Forum.

#  Submission

* 1. Q.1 What forms of pollution are most prevalent in the ocean, and what impact are they having?
		1. The vast majority of pollution in our oceans originates on land. The headline pollutant at present is plastic. It forms clearly visible islands of waste within ocean gyres and causes starvation in birds, turtles, and other species that ingest plastics mistaking them for food. The ingestion of micro-plastics by species low down the food chain which are in turn consumed by species higher up the food chain has the potential to lead to bio-accumulation. Whether the ingestion of plastics from, for example, consuming fish, will impact on human health is, as yet, unknown. Plastics also smother corals and other static species and in so doing damage habitat for marine species.
		2. A second key pollutant is found in the form of run off from agriculture and forestry which take nutrients and pesticides from the soil to the oceans. The impact of nutrients is seen in toxic algal blooms. The impact of pesticides in the ocean is less well understood.
	2. Q.2 What impact is climate change having on the ocean? What are the effects of ocean acidification now and in the future? How important is meeting the goals set out in the 2015 Paris Agreement on climate change for marine biodiversity
		1. Climate change is impacting on ocean currents, such as the Gulf Stream. Warming waters in the Arctic are causing the Gulf Stream to weaken. The result will be a change in the flow of nutrients around the Atlantic Ocean and changes in weather patterns.
		2. Climate change and the resulting warming oceans is leading species to migrate poleward impacting on both biodiversity and fisheries. Native species may then move from UK waters north towards the Arctic, other species moving north to UK waters will compete with our existing species. The fishing industry will have to either embrace the harvesting of species not previously found in UK waters, or migrate north as our traditional stocks move north.
		3. Meeting the goals of the 2015 Paris Agreement is a minimum requirement if we are to attempt to maintain marine biodiversity as it is. In reality the targets should be exceeded.
	3. Q.3 What more should the Government do to hasten progress towards Aichi targets?
		1. The UK has made significant progress towards Target 8, through tackling marine pollution from land-based activities. In particular, investments in sewage treatment and in industrial management have significantly reduced the level of and impact of some pollutants in the ocean. Nevertheless, parts of the UK continue to rely on infrastructure that is outdated and unable to cope with either the volume or the current constitution of wastes being disposed of in our sewers. Significant further investment is required therefore to ensure that our sewage systems are not overwhelmed leading to discharges into rivers, or directly into the sea.
		2. A major cause of blockages in sewers are wet wipes. Attention needs to be turned to a) educating the public about the proper disposal of wet wipes and b) reducing their production, sale and use.
		3. Significant legislative attention is also required to radically reduce pollution by plastics. Current measures to encourage lower use of plastics (by taxing single use plastic bags) and greater recycling are proving inadequate to the challenge. While some companies have voluntarily pledged to reduce plastics packaging, legislative action is also required by the government.
		4. Plastics legislation ought to focus on phasing out the production of oil-based plastics, on extended producer liability and on dealing with legacy plastics.
		5. It may be assumed that phasing out the production of oil-based plastics would be detrimental to the UK economy, however, in 1985 the world adopted the Ozone Convention[[1]](#footnote-1) and committed to phasing out CFCs and other chemicals that attack the ozone layer. The adoption of the convention led industry to produce alternative less harmful (to the ozone layer) chemicals. Plant based plastics are already being developed and used and a ban on oil-based plastics could help launch this industry. It will not, however, be possible to stop the use of all plastics immediately and may not be desirable to do so in the long term. Some oil based plastics may, for example, continue to be required in medical treatments and procedures. For this reason extended producer liability needs to be considered.
		6. While extended producer liability is something that the OSPAR Commission for the North East Atlantic is currently pursuing[[2]](#footnote-2) (the UK is party to the OSPAR Commission) the UK should not wait for action at the international level. Our oceans are being polluted by plastics, from nurdles used in the production of other plastic items to micro plastics produced as products break down, with all manner of plastics found between these stages accumulating in the oceans. We have had reports of micro-plastic pollution in UK rivers being recorded at higher levels than anywhere else in the world.[[3]](#footnote-3) Extended producer liability would improve the management of plastics through their lifecycle. In effect, it creates a financial incentive for producers to create products that use less plastic, are constructed in ways that make the recycling of their constituent parts easier and that use recycled plastics. It thus should lead to the reduction in production of plastics, a reduction in loss of plastics during the production process, and an increase in recycling of plastics.
		7. The government must adopt measures to address legacy plastics i.e. those already found in the oceans. There are a variety of options open to the government. It could seek to develop a fund, drawing on contributions from plastics producers, and use the fund to finance programmes to remove plastics. It could use existing taxes to support the work of existing entities such as Ocean Cleanup[[4]](#footnote-4) as they develop technologies to remove and recycle ocean plastics, or it could provide tax incentives to companies to invest in programmes to remove plastics from the oceans. One consideration, however, is that current efforts to remove plastics from the ocean do not address microplastics. The Government should support research into technology to remove these micro-plastics.
		8. The increasing reliance on aquaculture means that we are, as a society, relying on a less biologically diverse fisheries stock for nutrition than if we continued to obtain our fish protein from traditional fishing activities. If we are to ensure that Aichi Target 13 is met we need to take steps to actively conserve genetic diversity within marine species.

#  Recommendations

* 1. As stated in this submission, I recommend that the government develops and adopts legislation to address plastics pollution in the ocean.
	2. To be effective such legislation needs to tackle the production of plastics and develop extended producer liability.
	3. Action is required to tackle legacy plastics in the oceans and it is recommended that the government adopt measures to promote the removal of such legacy plastics.
	4. As understanding of micro-plastics in the oceans is limited, it is recommended that the government supports research into technologies to remove legacy micro-plastics from the oceans.

Professor Elizabeth Kirk is happy to present oral evidence to the committee or individual committee members.

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1. Vienna Convention for the Protection of the Ozone Layer (adopted 22 March 1985; entered into force 22 September 1988) 1513 UNTS 293 [↑](#footnote-ref-1)
2. Regional Action Plan (RAP) for Marine Litter (OSPAR Marine Litter RPA), available at: <https://www.ospar.org/work-areas/eiha/marine-litter/regional-action-plan> accessed 10 May 2018 [↑](#footnote-ref-2)
3. Dalton, J. “Manchester River Has Worst Level of Microplastic Pollution Ever Recorded, Says Study” The Independent 12 March 2018 https://www.independent.co.uk/environment/greater-manchester-river-tame-microplastic-pollution-worst-ever-university-study-a8248576.html [↑](#footnote-ref-3)
4. https://www.theoceancleanup.com/ [↑](#footnote-ref-4)